

TABLE OF CONTENTS

Foreword: Another Decade of PME Research <i>Barbara Jaworski</i>	ix
Introduction	xi
Reviewers of the Chapters in This Volume	xiii
Presidents of the PME International Group	xv
Local Organizers of the PME International Conferences	xvii
Editors of the Proceedings of the PME International Conferences	xix
PME International Group Conferences	xxi
PME North American Chapter (PME-NA) Conferences	xxiii
Part 1: Cognitive Aspects of Learning and Teaching Content Areas	
1. Generalization, Covariation, Functions, and Calculus <i>Fernando Hitt and Alejandro S. González-Martín</i>	3
2. On Numbers: Concepts, Operations, and Structure <i>Rina Zazkis and Ami Mamolo</i>	39
3. Research on the Learning and Teaching of Algebra <i>Elizabeth Warren, Maria Trigueros and Sonia Ursini</i>	73
4. Research on the Teaching and Learning of Geometry <i>Keith Jones and Marianna Tzekaki</i>	109
Part 2: Cognitive Aspects of Learning and Teaching Transverse Areas	
5. Curriculum and Assessment <i>Leonor Santos and Jinfa Cai</i>	153
6. Developmental, Sociocultural, Semiotic, and Affect Approaches to the Study of Concepts and Conceptual Development <i>Athanasios Gagatsis and Elena Nardi</i>	187
7. Digital Technology in Mathematics Teaching and Learning: A Decade Focused on Theorising and Teaching <i>Nathalie Sinclair and Michal Yerushalmy</i>	235

TABLE OF CONTENTS

8. Language in Mathematics Education Research <i>Luis Radford and Richard Barwell</i>	275
9. Proof and Argumentation in Mathematics Education Research <i>Andreas J. Stylianides, Kristen N. Bieda and Francesca Morselli</i>	315
10. Recent Advances in Research on Problem Solving and Problem Posing <i>Keith Weber and Roza Leikin</i>	353
11. Reflections on Progress in Mathematical Modelling Research <i>Lyn D. English, Jonas Bergman Ärlebäck and Nicholas Mousoulides</i>	383
Part 3: Social Aspects of Learning and Teaching Mathematics	
12. Research on Mathematics-Related Affect: Examining the Structures of Affect and Taking the Social Turn <i>Peter Liljedahl and Markku S. Hannula</i>	417
13. Tracing the Socio-Cultural-Political Axis in Understanding Mathematics Education <i>Núria Planas and Paola Valero</i>	447
Part 4: Professional Aspects of Teaching Mathematics	
14. Pre-Service and In-Service Mathematics Teachers' Knowledge and Professional Development <i>Fou-Lai Lin and Tim Rowland</i>	483
Author Index	521
Subject Index	547